Detailed Plan Design and Development Checklists

The following checklists are provided:

- Plan Design and Development Checklist - General
- Plan Design and Development Checklist - Traffic Control Design (Signing, Pavement Marking, Guardrail, Lighting, Traffic Signals)

PLAN DESIGN AND DEVELOPMENT CHECKLIST - GENERAL

1. Review Reports and Resources

    A. Review project concept report, summation and transcript of public hearing documents, and/or environmental documents (plan sheets should incorporate all necessary mitigation measures identified)

    B. Review traffic operations report

    C. Review surface thickness and material recommendations

    D. Review linear soil survey recommendations

    E. Review drainage report

    F. Review 90-1 survey and safety review

    G. Gather and review old plans for the proposed project area

    H. Obtain and review survey data

    I. Review milestone for critical activity dates

    J. Schedule preliminary review, PS&E review, and plan completions dates

2. Coordination

    A. Advise other sections, divisions, districts, city, and/or FHWA of changes made in alignment, drive locations, grades, etc.

    B. Review environmental considerations with Design Division - Environmental Section

        1. Army Corp of Engineers Section 404 Permit

            a. Wetland mitigation

            b. Large stream crossings

        2. Review need for erosion control and develop erosion control plan

3. Satisfy flood plain requirements

C. Review coordination of signing, marking, signals, lighting, and guardrail with Design Division - Traffic Section

D. Review coordination of private utility relocations and adjustments with Design Division –Technical Support Section, Utilities Engineer

1. Submit preliminary plan and profile sheets and cross section sheets

E. Review coordination of airport clearance with Design Division –Technical Support Section, Utilities Engineer

F. Review coordination of right of way, easements, encroachments, etc., with Design Division - Right of Way Section

G. Review coordination of bridges and box culverts with Bridge Division

H. Review coordination of special provisions (SP) with Maintenance and Engineering Services Division

1. Review need of common special provisions:

__ ACOE Section 404 Permit see http://www.ugpti.org/dotsc/prepguide/index.php
__ Tribal Employment Rights Ordinance (TERO) Requirements
__ Contractor Furnished Scale, Scale Person, and Dump Person
__ 408 Hot Bituminous Pavement - Special
__ 409 Hot Bituminous Pavement - Quality Control/Quality Assurance
__ 409 Hot Bituminous Pavement - Quality Control/Quality Assurance Contractor Mix Design
__ Superpave Volumetric Mix Design
__ Joint Sealing and Sawing - Hot Bituminous Pavement
__ Grinding
__ Dowel Bar Retrofit
__ Tolerance in Surface and Ride Quality for Interstates
__ Concrete Pavement Surface Texture
__ Pumping Equipment
__ Portable Changeable Message Sign
__ Critical Path Method
__ Partnering

2. Submit required special provisions to Maintenance and Engineering Services a minimum of 6 weeks before plan completion date

3. Submit required TERO special provisions to Maintenance and Engineering Services a minimum of 12 weeks before plan completion date

4. SPs to be listed on Basis of Estimate of plans (include SPs from other sections and divisions)

I. Review coordination of bench sections and stabilized earth retaining walls with Materials and Research Division

J. Review coordination of Preliminary Engineering and Cost Maintenance Agreements with the Planning and Programming Division or Local Government Division

K. Review coordination of railroad crossings with Planning and Programming Division - Railroad Section

1. Submit preliminary plan and profile sheets and cross section sheets

2. Determine if crossing are to be abandoned or if the number of tracks be reduced

3. Determine type of crossing: rubber, wood, or asphalt cement (check with city or district)

4. Determine type of traffic control: signalized, not signalized

5. Determine clearances

6. Determine need for pipe crossings, jacked or bored (need standard drawing and railroad request forms for permit)

7. Include standard drawings for railroad approach and pavement markings

8. Include appropriate standard note(s) 107-111 to 107-115 (depending on Railroad Company) and pay item to require liability insurance

9. Check for correct railroad names

L. City utilities or city projects (participating funds or city funds only)

1. NDDOT to complete design

2. City to complete design

3. Include in NDDOT plan sheets, separate plan sheets, tied or not-tied contracts

4. Review need for city specifications

5. Review bid items, existing, new, and coordination of similar items

6. Obtain utility certification or disposition of relocations and adjustments

1. Project Files

A. Maintain project files (document meetings, telephone calls, decisions, etc)

2. General Plan Development

A. Develop Geometric Design

1. Horizontal alignments (tangents, curves, spirals, superelevation)

a. Check design vehicle and truck turning radii

2. Vertical alignments (grades, crest and sag curves, sight distances, passing zones)

a. Develop profile grades and PI-s (vertical curve lengths calculated from design speed)

b. Check grade line and topography for hidden intersections or decision sight distance locations

c. Check grades to fit approaches, driveways, side streets, etc.

d. Check vertical clearance at bridges

e. Check grades to fit right of way constraints

3. Roadway cross section

a. Review recommended base and pavement structure

b. Determine profile grade point and cross slopes

c. Determine lane and shoulder widths

d. Determine foreslopes

e. Determine ditch sections and profiles

f. Determine cut and fill slopes, barn sections and bench sections (bench sections should be reviewed with Materials and Research)

g. Determine backslopes

B. Develop Intersection Design

1. Develop intersection layout and/or type (Standard Drawing D-203-6, Type A and B, Radial "T", etc.)

a. Determine design vehicle and check turning radii

b. Determine channelization/median requirements

c. Check lane alignments and skew across intersection

d. Check sight distances

e. Check need for traffic islands

f. Check need for left-turn lanes

g. Check need for right-turn lanes

h. Check requirements for tapers and storage lengths

i. Review location for crosswalks and curb ramps

j. Review signal locations

k. Review need for parking restrictions

C. Develop Earthwork Design

1. Determine clearing and grubbing

2. Determine removal of structures

3. Determine classification of excavation

4. Determine subcuts

5. Review borrow

    a. Determine borrow or waste requirements

    b. Determine mandatory borrow or mandatory waste requirements

        (i) Obtain public interest determination from FHWA for mandatory borrow and excavation sites

    c. Submit requirements to Design Division - Right of Way Section

6. Determine need for slope flattening

7. Determine shrink and swell factors

8. Balance earthwork and/or determine borrow needs

9. Compute haul

10. Develop mass diagrams

11. Review need of erosion control and protection

D. Develop Drainage Design

1. Determine drainage areas, size pipe, and compute quantities for:

    a. Culverts (centerline and approaches)

    b. Storm drains (pipe, inlets, manholes, castings, etc)
    c. Lift stations

E. Develop Right of Way Design

1. Existing permanent right of way

2. New permanent right of way

3. Temporary construction easements

4. Temporary and permanent drainage easements

5. Access control requirements

6. Intersection sight distance requirements

F. Prepare preliminary and final cost estimates

1. Traffic Section quantities included

2. Right of Way Section costs included

3. Bridge Division quantities included

4. Materials and Research Division quantities included

3. Plan Sheet Development

A. Title Sheet

__ Project numbers (main funding number and secondary funding numbers)
__ PCN number
__ Design data (current and forecast traffic, HS bridge live load, pavement design life, etc.)
__ Project description (county, project number, location, type of work)
__ Governing specifications paragraph
__ Length of project (gross and net miles)
__ North arrow
__ Legal Description (section, township, range)
__ Project data/map (begin and end limits, reference points, stations, equations, bridges, exceptions, county lines, interchanges, and highways)
__ Plan completion date and signature block
__ Mile splits
__ Clearzone distance
__ Barrier striping diagram and legend
__ Borrow sites and stockpile sites (may show as separate detail sheet)

B. Table of Contents Sheet

__ Section Number, Sheet numbers, and Description
__ Sheet numbers included for each contract on multiple contract projects
__ List of Standard Drawings (do not number sheets)

C. Scope of Work Sheet

__ Detail showing layout and type of work
__ PE Signature Block

D. Notes Sheets

__ Review list of standard notes and write any additional plan notes
__ Check that all incidental items are included in the notes
__ Check that all pay items listed in notes are included on the quantity sheets
__ PE Signature Block

E. Quantities Sheets

__ Check that the Item Description is exactly as it is written in the Mainframe or Annual Average Bid Price.
__ Check that totals match plan sheet totals
__ Check that subtotal match totals
__ Show funding splits (participating, non participating, city funds only, alternatives, total)
__ Check to include all quantities from other sections and divisions
__ Check to include all quantities listed in plan notes and special provisions
__ Contract bond, mobilization, railroad insurance, field lab (for tied projects show on the major project only)

F. Basis of Estimate Sheets

__ Pavement Removal pay items
__ Grading pay items:
    __ Summary of quantity breakdown (excavation, embankment, etc.)
    __ Water quantity for embankment, excavation, aggregate, and dust palliative
    __ Topsoil removal (list depth and areas)
    __ Additional Sheets
__ Base pay items

__ Surfacing pay items
__ Pavement marking pay items
__ Erosion control pay items:
    __ Sodding (list areas)
    __ Seeding and temporary cover crop (list areas)
    __ Mulching (list areas)
    __ Erosion control devices
__ List core locations and surfacing thickness data (blended base projects)
__ List special provisions (number and description)
__ PE Signature Block

G. Data Tables, Concrete Pavement Repair Locations, Coring Data, Salvaged Base Summary, Earthwork Summary, Mass Diagram, Borrow Areas, Pipe and End Section Table

__ Crown rates and superelevation tables
__ Concrete Pavement Repair Locations
__ Coring data and locations
__ Salvage base summary
__ Earthwork
    __ Label locations and quantities of borrow entered into mass diagram
    __ Label locations and quantities of hauled materials from side roads etc. entered into mass diagram
    __ Label average haul
    __ Label locations and quantities of special excavation and subcut
    __ Label locations and quantities of clearing and grubbing and topsoil removal
    __ Label locations and quantities of topsoil borrow
    __ Label locations and quantities for approaches, drives, etc.
    __ Borrow areas
__ PE Signature Block

H. General Details Sheets

__ Review need of common details
    __ Grading
    __ Slope flattening
    __ Subgrade repair areas
    __ Pipe extensions
    __ Underdrain areas and associated drawings
    __ Flared intersection layouts and approach
    __ Bridge end and railroad crossing

__ Erosion control details
__ Milling
__ PCC pavement (dowels, tie bars, joints, reinforcement over pipe, etc.)
__ Ramp layouts
__ Edgedrains and headwalls
__ Edgedrain connection to manhole or inlet
__ Median and turning lane details
__ Cross-over and ramp connections
__ Energy dissipater details
__ Lift station details
__ Floating manhole casting
__ Utility, Trench, Pipe backfill details
__ Stabilized Construction Access
__ Wetland easements

__ Dimension clarity
__ Cross referencing of details by sheet heading
__ PE Signature Block

I. Typical Sections Sheets (Existing and Proposed)

__ Dimensions
__ Location by stations and Reference Points (RP)
__ Profile and survey location
__ Crown rates and superelevation
__ Material classifications
__ HBP: show aggregate and pavement width, thickness, and areas
__ PCC: show aggregate and pavement width, thickness, areas, joints, dowel bars, reinforcing, and tiebars.
__ Curb and gutter
__ Edgedrains
__ Pipe installations
__ Foreslope, ditch width, and backslope if applicable
__ Geotextile Fabric
__ Excavation limits and/or areas (common, class, subcut, muck)
__ Waste areas (within cross section)
__ Sodding/Hydromulching limits
__ Existing typical section should show patching with a variable depth (for blended base projects)
__ PE Signature Block

J. Removals

__ Layout of removal limits
__ PE Signature Block

K. Inlet and Manhole Summary

__ Drainage details
  __ Culvert summary sheets (location, type, size, length)
    __ Hydraulic data for pipe greater than 30 inches (100 yr and design frequency yr)
  __ Storm drain summary sheets (location number, location, description, top elev., invert elev., base elev., riser length, casting type, position of incoming lines and inverts). This information may be shown on plan and profile for smaller projects.
__ PE Signature Block

L. Drainage Layouts

__ Show direction of drainage flows (ditches, culverts, storm drain)
__ PE Signature Block

M. Plan & Profile Sheets

__ Dimensional clarity
__ North arrow
__ Label businesses
__ Show and label horizontal alignment control points and ties, curve data and superelevation rates, etc. (move survey and alignment information to layout sheets if sheets are too cluttered)
__ Show and label vertical alignment grades, curve data, sight distance data, locations and stations of barrier stripes, etc.
__ Show and dimension existing right of way, proposed right of way, construction easements, drainage easements, section lines, etc.
__ Show and label driveway widths, lengths, and locations
__ Show and label curb ramps
__ Earthwork
  __ Label mile split quantities
  __ Label locations and quantities of borrow entered into mass diagram
  __ Label locations and quantities of hauled materials from side roads etc. entered into mass diagram
  __ Label average haul
  __ Label locations and quantities of special excavation and subcut

__ Label locations and quantities of clearing and grubbing and topsoil removal
__ Label locations and quantities of topsoil borrow
__ Label locations and quantities for approaches, drives, etc.
__ Show and label bypass locations, horizontal and vertical alignments, and quantities
__ Show and Label all ditch grades and ditch blocks

__ Show and label Riprap foundation fill, erosion control locations, retaining walls, etc.
__ Label and show erosion control (may include in basis of estimate or as detail sheet)
__ Culverts
__ Label removal and/or plug locations
__ Storm drains (inlets and manholes)
__ Check number of inlets or manholes to match summary and quantity sheets
__ Check type of inlet and casting
__ Check manhole size to accommodate storm drain line sizes
__ Check elevations
__ Check riser lengths to elevations shown
__ Check offset locations (offset distance to center of riser)
__ Check length of storm drain lines
__ Check if city or district want insulation on inlets
__ Check if city or district want a minimum depth for inlets
__ Water and sanitary lines
__ Check with city on location and installation (may be shown on separate plan and profile sheets)
__ Show and label direction of drainage flow (ditches, culverts, storm drain)
__ Check existing underground utilities for details (elevation and location)
__ Cross reference detail sheets that apply
__ List pay item quantities
__ Make sure all changes are corrected on related sheets and quantities
__ PE Signature Block

N. Contours Sheets

__ PE Signature Block

O. Layouts Sheets (Survey Data, Fencing, etc.)

__ Survey control point data sheet included in plans

__ If the plan and profile become cluttered, it may be necessary to provide separate sheets for the alignment data, removal data, etc.
__ Dimension clarity
__ PE Signature Block

P. Paving Layout Sheets

__ Dimension clarity
__ Show survey and office location designation
__ Show and label joint spacing, locations, type, tie bars, seal, etc.
__ Show and label lane and shoulder widths
__ Show and label pavement reinforcement over pipe
__ Show and label driveways, sidewalks, curb ramps, median paving etc.
__ List pay item quantities by page
__ This information may be on plan and profile
__ PE Signature Block

Q. Work Zone Traffic Control Sheets

__ Develop work zone traffic control note (identify construction phasing, restrictions, maintenance of access, applicable standard drawings, etc.)
__ Develop work zone traffic control details and layouts (construction phasing and/or special considerations, show and label signing, devices, markings, etc.)
__ Develop ATraffic Control Devices List@
__ Review need for special signs
__ Review need for traffic control supervisor
__ Review work zone speed limits guidelines
__ Review edge drop-off guidelines and notes
__ Review warrants for portable changeable message signs
__ Check if detours are required
__ Check if temporary bypasses are required
__ Give Traffic Section a copy of plans to review the traffic control
__ PE Signature Block

R. Signing and Markings Sheets

__ Advise Design Division - Traffic Section of changes and/or revisions
__ Coordinate data for typical section, horizontal and vertical alignment
__ Obtain estimated quantities, spec and code
__ See Also: Plan Design and Development Checklist - Traffic Control Design in this Appendix

__ PE Signature Block

S. Guardrail Sheets

__ Advise Design Division - Traffic Section of changes and/or revisions
__ Coordinate data for typical section, horizontal and vertical alignment
__ Obtain estimated quantities, spec and code
__ See Also: Plan Design and Development Checklist - Traffic Control Design in this Appendix
__ PE Signature Block

T. Lighting and Signals Sheets

__ Advise Design Division - Traffic Section of changes and/or revisions
__ Coordinate data for typical section, horizontal and vertical alignment
__ Obtain estimated quantities, spec and code
__ See Also: Plan Design and Development Checklist - Traffic Control Design in this Appendix
__ PE Signature Block

U. ITS Sheets

__ PE Signature Box

V. Bridge and Box Culverts Sheets

__ Advise Bridge Division of changes and/or revisions
__ Coordinate data for typical section, horizontal and vertical alignment
__ Obtain estimated quantities, spec and code
__ PE Signature Block

W. Pit Plats Sheets

__ Insert pit plat sheets form Materials and Research
  __ Included in plans
  __ Not required

X. Haul Road Restrictions Sheets

__ Insert haul road restrictions sheets
  __ Included in plans
  __ Not required

Y. Right of Way Plot Sheets

__ PE Signature Block

Z. Soils Profile and Cross Sections Sheets

__ Insert soil profile and/or cross section sheets form Materials and Research
- __ Included in plans
- __ Not required

AA. Cross Sections Sheets

__ If earthwork sheets are not included, add cut and fill quantities to sections
- __ Included in plans (include in plans if 25 sheets or less)
- __ Not included in plans (include plan note 100-014)

__ Run cross sections with marked points for future reports generated by district

__ Show and label inlets and manholes
- __ Cross reference to plan and profile

__ Check slopes and grade line to match existing terrain and within right of way limits

BB. Standard Drawings Sheets

__ Review list of standard drawings and add appropriate drawings

__ Standard Drawings to be listed on Table of Contents of plans (include standards from other Sections and Divisions)

__ Include required Standard Drawings in the back of the original plans only. Print the required Standard Drawings from the web at http://www.dot.nd.gov/designmanual.html under Standard Drawings.

PLAN DESIGN AND DEVELOPMENT CHECKLIST - TRAFFIC CONTROL DESIGN (SIGNING, PAVEMENT MARKING, GUARDRAIL, LIGHTING, TRAFFIC SIGNALS)

A. Signing

1. Check safety review for recommendations for signs with A-frames and other substandard signs.

   Comment. _____

2. Compare Sign Locations and Layout information with Sign Summary Sheet.

   Comment. _____

3. Check Junction signing for placement and distance from intersections.

   Comment. _____

   a. Stop Conditions, Route Turn Markers across the intersections.

      Comment. _____

   b. Check lighting plans to see if signs can be placed on light standards.

      Comment. _____

   c. Distance and Destination sign legends to be checked with District Maps from Operations Section in Planning and Programming Division.

      Comment. _____

4. Sign Supports.

   a. Check lengths on summary sheets.

      Comment. _____

   b. Check breakaway types - round pipe

      1. Type A Single Post Signs

         Comment. _____

2. Type B Two Post Signs with post spacing less than 8 feet.

   Comment. _____

3. Type C Two Post or More Signs with post spacing 8 feet or more.

   Comment. _____

4. Check fuse joint requirements.

   Comment. _____

c. Multi-Direction Breakaway Bases - Round pipe to be used at ramp terminals where post can be struck in any direction.

   Comment. _____

d. Sign Areas

   1. Primary and Secondary Signs.

      a. Type 2 - Reflective Sheeting. All sign backgrounds except as listed in b.

         Comment. _____

      b. Type 3a - Reflective Sheeting. Stop Signs, Yield Signs, Do Not Enter Signs, Wrong Way Signs, All Yellow Warning Signs, Legends of Green, Blue, and Brown Background Signs.

         Comment. _____

   2. Interstate Highway Signs.

      a. Check to see if signs have notes on layouts requiring type 3a retroreflective sheeting for signs.

         Comment. _____

5. Check if standards drawings that are required have been provided.

   Comment. _____

6. Check if special notes for this project are provided.

   Comment. _____

7. Check if Standard Notes are provided. Section 754 Standard Notes can be found on the web at http://www.dot.nd.gov/designmanual.html under Plan Preparation Guide.

   Comment. _____

8. Check if cost estimate items and cost are correct.

   Comment. _____

9. Check sign design layout sheets for station color and area.

   Comment. _____

10. Check special assembly layouts for sign sizes and correct station.

    Comment. _____

Pavement Markings

1. Check Pavement Marking Material Selection Chart. The materials shall meet these requirements.

   Comment. _____

2. The center line for two-lane, two-way roadways shall be yellow.

   Comment. _____

3. The left edge line for divided highways shall be yellow.

   Comment. _____

4. Layouts shall have width and color of line shown.

   Comment. _____

5. The pay items shall be listed on plan layouts showing the material, color, type of line and quantity. Each width of line shall be totaled. Check totals. Compare line widths and color with what is shown on layouts.

   Comment. _____

6. Check if Standard Drawings have been provided.

   Comment. _____

7. Check if special notes for this project are provided.

   Comment. _____

8. Check if items and costs are provided.

   Comment. _____

9. Check if Standard Notes are provided. Section 762 Standard Notes can be found on the web at http://www.dot.nd.gov/designmanual.html under Plan Preparation Guide.

   Comment. _____

10. Check if special notes are provided.

    Comment. _____

C. Guardrails

1. Check safety reviews to see if guardrail is proposed.

   Comment. _____

2. Review concept report for guardrail requirements.

   Comment. _____

3. Determine if guardrail embankment is to be placed with grading or a separate item.

   Comment. _____

4. Check to determine if special notes are required.

   Comment. _____

5. Check if Standard Drawings have been provided.

   Comment. _____

6. Check if items and costs are provided.

   Comment. _____

7. Check if standard notes are provided. Section 764 Standard notes can be found on the web at http://www.dot.nd.gov/designmanual.html under Plan Preparation Guide.

   Comment. _____

D. Lighting

1. Interim Lighting.

   a. Check Layout to determine if permanent lighting will interfere with interim lighting.

      Comment. _____

   b. Check to determine if pedestrians can negotiate around interim lighting and construction area.

      Comment. _____

   c. Check to see that underground and overhead utilities do not interfere with placement of poles, anchors, and wires.
      Comment. _____

   d. Check that permanent signal will fit while interims are operating.

      Comment. _____

   e. Check summary of quantities conduit and cable runs and notes.

1. Items to be bid as each.

   Comment. _____

2. Permanent Lighting.

   a. Check Layout to determine if permanent lighting will fit interim lighting.

      Comment. _____

   b. Check to determine if pedestrians will be able to negotiate around light poles.

      Comment. _____

   c. Check to see if break-away bases are required.

      Comment. _____

   d. Check location if in the way of construction.

      Comment. _____

   e. Check to see that underground and overhead utilities do not interfere with placement of poles and mast arms.

      Comment. _____

   f. Check if festoon circuit is required.

      Comment. _____

   g. Check that pull box locations are shown on the plan layout.

      Comment. _____

   h. Check if stations of layout items agree with quantity calculations and quantity sheet.

      Comment. _____

i. Check feed point location.

Comment. _____

j. Check summary of quantities conduit and cable runs.

Comment. _____

k. Check if special feed point requirements are needed and a layout.

Comment. _____

l. Check if note is provided when removed equipment is not to become property of the state.

Comment. _____

m. Check if all side street lighting has power provided.

Comment. _____

n. Check if Lighting Standards have been provided.

Comment. _____

o. Check if items and costs are provided.

Comment. _____

3. Check to determine if special notes are required.

Comment. _____

4. Check if standard notes are provided. Section 770 Standard notes can be found on the web at http://www.dot.nd.gov/designmanual.html under Plan Preparation Guide.

Comment. _____

5. Check if Utility Company Feed Point Letter is Prepared.

Comment. _____

E. Traffic Signals

1. Interim Traffic Signal

   a. Check Layout to determine if permanent signals are behind interim signals.

      Comment. _____

   b. Check to determine if pedestrian signals are needed. If replacing in-place signals that are in the way of construction, and pedestrian signals are in place, pedestrian signals are needed in the interim.

      Comment. _____

   c. Check to see that underground and overhead utilities do not interfere with placement of poles, anchors and placement of span wires.

      Comment. _____

   d. Check that poles and anchors do not interfere with pedestrians.

      Comment. _____

   e. Check so that permanent signals will fit while interims are operating.

      Comment. _____

   f. Check note on coiling enough cable for relocation of signal heads during different phases.

      Comment. _____

   g. Check if interim item is placed on the plan layout.

      Comment. _____

   h. Check if interim signal heads have 2 signal heads in each direction and have a dimension of at least 8 feet between.

      Comment. _____

i. Check cable runs with signal head numbers.

Comment. _____

j. Check to see if signal head and traffic volume layouts are shown.

Comment. _____

k. Check timing, phasing, cam breakout, notes and flashing requirements.

Comment. _____

l. Check summary of quantities conduit and cable runs and notes.

1. Items to be bid as each.
2. State furnished items.
3. These items to be wood pole mounted.

Comment. _____

m. Check if interim signals need to be coordinated.

Comment. _____

2. Permanent Traffic Signals.

a. Check Layout to determine if permanent signals are behind interim signals.

Comment. _____

b. Check if near side signals are required.

Comment. _____

c. Check if the signal standards are within the clear zone.

Comment. _____

d. Check to determine if pedestrian signals are needed.

Comment. _____

e. Check location so that signal is not in the way of construction and that pedestrian signals are in place near crosswalk.

Comment. _____

f. Check that lane width and all other street dimensions are shown.

Comment.
_____

g. Check to see that underground and overhead utilities do not interfere with placement of poles and mast arms.

Comment. _____

h. Check the need for pedestrian actuation push buttons other than on signal poles.

Comment. _____

i. Check if signals have 2 signal heads for through movement in each direction and have a dimension of at least 8 feet between.

Comment. _____

j. Check that signal and pedestrian heads are positioned so they match standard drawings.

Comment. _____

k. Check if pedestrian push button sign location number and direction it's facing are shown on plan layout.

Comment. _____

l. Check that pull box locations are shown on the plan layout.

Comment. _____

m. Check if emergency vehicle preemption location and number are shown on plans.

Comment. _____

n. Check cable runs with signal head numbers and color coding.

Comment. _____

o. Check that combination signal and light standards have lighting conductors only entering the pole base.

Comment. _____

p. Check to see if signal head and traffic volume layouts are shown.

Comment. _____

q. Check if stations of layout items agree with quantity calculations and quantity sheet.

Comment. _____

r. Check timing, phasing, cam breakout, notes and flashing requirements.

Comment. _____

s. Check if emergency vehicle preemption is used and that phasing is shown.

Comment. _____

t. If existing signals are being removed, show layout and list removed items and quantity.

Comment. _____

u. Check if note is provided when removed equipment is not to become property of the state.

Comment. _____

v. Check traffic signal cross section to be sure the signal location and stationing agree with other layouts. Check if street name signs are the same as shown on signing plans.

Comment. _____

w. Check controller location and direction of door opening.

Comment. _____

x. Check summary of quantities conduit and cable runs and notes.

1. Internal wiring note.
2. Emergency vehicle indicator light conductor.
3. Emergency vehicle detector cable.
4. Indicate internal wire quantities.

Comment. _____

y. Check if signal heads on signal poles at cross section are located correctly.

Comment. _____

z. Check if signs for signal head requirements are same as signing plan layouts.

Comment. _____

aa. Check if signal progression is required in plans and check progression layout for content, etc.

Comment. _____

bb. Check if emergency vehicle preemption needs advance detection.

Comment. _____

cc. Check to see if interconnect conductor to be placed between intersections. Interconnect shall be in separate conduit. Pull boxes shall be placed every 500 feet maximum.

Comment. _____

dd. Check to see if railroad signal interconnect is provided or necessary.

Comment. _____

ee. Detector loops shall be numbered, showing the number of amplifiers, number of turns, sizes, type of loop, number of preformed loops, and number of micro-loops both double and single prop sets.

Comment. _____

ff. Check if speed monitoring is required.

Comment. _____

3. Check if special feed point requirements and layout are needed.

Comment. _____

4. Check if Standard Drawings have been provided.

Comment. _____

5. Check if items and costs are provided.

Comment. _____

6. Check to determine if special notes are required.

Comment. _____

7. Check if standard notes are provided. Section 772 Standard notes can be found on the web at http://www.dot.nd.gov/designmanual.html under Plan Preparation Guide.

Comment. _____

8. Check if the utility company feed point letter is prepared.

Comment. _____